

AMENDMENT AND RESPONSE

Serial No.: 09/291,798

Filing Date: April 14, 1999

Title: REDUCED POWER CONSUMPTION IN A COMMUNICATION DEVICE

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REMARKS

Applicant has reviewed the Office Action mailed on March 6, 2003 as well as the art cited. Claims 1, 3-6, 8-17, and 19-28 are pending in this application. Reconsideration of the rejections is respectfully requested based on the following remarks.

Claim Objections

Claims 21-23, 27, and 28 were objected to because of incorrect dependencies due to the renumbers of their parent claims. Applicant has corrected the dependencies. Withdrawal of the objection is respectfully requested.

Rejections Under 35 U.S.C. § 112

Claim 1 was rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. Applicant has amended claim 1 to clarify that packets are received when incoming data is detected.

Rejections Under 35 U.S.C. § 103

Claims 26 and 28 were rejected under 35 USC § 103(a) as being unpatentable over Medendorp (U.S. Patent No. 5,764,734). Applicant respectfully traverses the rejection.

Claim 26 is directed to a method for controlling power consumption in a remote packet communication device. The method requires "setting a power down timer for the remote packet communication device to a power down period so that the remote packet communication device will power up again in time to detect a retransmission of data from the head end packet communication device." The Examiner recognizes that Medendorp does not teach "powering up in time to allow detection of an attempted retransmission of a packet." However, the Examiner asserts that this would have been obvious to select such a duration to allow proper communication. Applicant respectfully traverses this assertion.

Medendorp purports to achieve power savings by monitoring a control channel for a message indicating that a call is waiting for the receiver. Col. 3, lines 23-29. Presumably, the

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duration of the timer in Medendorp is set based on the time slot of the control channel used to indicate a call is waiting for the receiver. Col. 4, line 56- Col. 5, line 22. Medendorp does not power up its receiver to listen to the data channel unless the control channel indicates that a call is waiting. *Id.* Thus, one of ordinary skill in the art would not be lead to set the duration of a power down timer to allow detection of retransmission of data since, in Medendorp, the counter used to control power down is related to signaling on a control channel and not used to assure reception of data on the data channel. Therefore, claim 26 is not obvious in light of Medendorp.

Claim 28 depends from claim 26 and thus is also allowable.

Claims 1, 3, 5, 20, and 22 were rejected under 35 USC § 103(a) as being unpatentable over Medendorp (U.S. Patent No. 5,764,734) in view of Kim et al. (U.S. Patent No. 6,151,334). Applicant respectfully traverses this rejection.

Claim 1 is directed to a method for controlling power consumption in a communication device. The method includes powering down at least a portion of a receiver of the communication device for a selected period of time in response to an indication from a data source that a data transmission has ended, powering up the at least a portion of a receiver to detect incoming data when the selected period of time expires, and receiving one or more packets when incoming data is detected. The at a portion of the receiver is powered up in time to allow detection of an attempted retransmission of a packet.

The cited references, alone or in combination, fail to teach or suggest this claimed method for controlling power consumption. The Examiner recognizes that Medendorp does not teach or suggest powering down a receiver in response to an indication from a data source that a transmission has ended. The Examiner attempts to fill this gap with Kim. The Examiner asserts that Kim discloses a system wherein the receiver powers down when it receives a particular code word from the transmitter. Applicant respectfully traverses the Examiner's assertions with respect to Kim.

Specifically, Applicant respectfully notes that nothing in Kim teaches powering down a receiver in response to a code word from the transmitter. Kim simply refers to entering a "power down mode" or "idle state" when the code is received. Kim does not further define this state.

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Significantly, Kim does not indicate that the receiver itself is powered down. From the context of Kim, it is more likely that other circuitry associated with the receiver is powered down. In fact, Kim describes another signal referred to as a "power up code." See, e.g., Fig. 3. If the power down code turns the receiver off, how would the receiver receive the power up code? No such mechanism is described in Kim. The existence of this power up code, thus, indicates that the power down code is not used to power down the receiver. Therefore, the combination of Kim and Medendorp is not proper and further, the combination of Kim and Medendorp, does not teach or suggest the claimed powering down of at least a portion of the receiver in response to an indication from the data source that a data transmission has ended.

Further, the Examiner asserts the same argument with respect to claim 1 as discussed above with respect to claim 26 with respect to the retransmission of packets. Applicant incorporates the arguments presented above with respect to Claim 26 herein with respect to claim 1. Therefore, claim 1 is not obvious in view of the cited references.

Claims 3 and 5 depend from claim 1 and, as such, are also allowable.

Further, claim 5 calls for adds other limitations not taught or suggested by the cited art. Specifically, the Examiner argues that Medendorp teaches the elements of claim 5 since data is checked for again following another power down period. However, this misinterprets the limitations of claim 5. Claim 5 calls for powering up the receiver, checking for incoming data, and, when no data is detected, checking for incoming data without requiring a powering down during this "another selected time period." Since this is not taught or suggested by the references, alone or in combination, claim 5 is also allowable.

Claim 20 is directed to a method of power management for a communication system that includes at least one head end communication device and at least one remote communication device. The method includes setting a counter at a remote unit to a predetermined power down period, and checking for an incoming transmission after the power down period has expired. If an incoming transmission is received, resetting the counter in response to an indication from the head end communication device that the transmission has ended and if no incoming transmission is received, resetting the counter to the predetermined power down period.

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As with claim 1, the combination of the references does not teach or suggest "resetting the counter in response to an indication from the head end communication device that the transmission has ended." Therefore, claim 20 is allowable over the cited art.

Claim 22 further adds that the power down period is set to allow reception of retransmitted data. For the reasons provided above, the art, alone or in combination, fails to teach or suggest the limitation of claim 22 with respect to retransmission of data. Therefore claim 22 is also allowable.

Claims 24 and 25 were rejected under 35 USC § 103(a) as being unpatentable over Medendorp (U.S. Patent No. 5,764,734) in view of Tiedemann et al. (U.S. Patent No. 5,392,287). Applicant respectfully traverses this rejection.

Claim 24 is directed to a method for controlling power consumption in a remote communication device in signal communication with a head end communication device. The method includes starting a counter for the remote communication device to time a predetermined power down period, powering down the remote communication device for the predetermined power down period, powering up the remote communication device to check for any incoming data, and starting a counter for the head end communication device to time for substantially the same predetermined power down period after completion of a data transmission to the remote.

The Office acknowledges that Medendorp fails to teach or suggest synchronizing the counter with a counter disposed at the source of the incoming data. The Office however cites Tiedemann, col. 4 lines 17-33. Tiedemann fails to teach or suggest synchronizing the counter with a counter disposed at the source of the incoming data to time for substantially the same power down time period.

Respectfully, the Office has failed to provide a *prima facie* case of obviousness. First, nothing in Tiedemann or any other reference of record makes up for the deficiencies of Medendorp. Tiedemann discusses a system where a synchronization is maintained by a pilot signal transmitted on a separate pilot channel. According to Tiedemann, a receiver may realign its timing by synchronizing to the pilot signal. Col. 2 line 33-40; col. 6, lines 17-23 and col. 6, lines 62-68. There is no teaching or suggestion in Tiedemann or any other reference of record of

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synchronizing the counter with a counter disposed at the source of the incoming data to time for substantially the same power down period.

Second, there is no legally sufficient motivation to combine the references. In support of the argument that the references may be combined, the Office has provided only a general statement to the effect that synchronization alleviates timing problems between receivers and transmitters (Office action at page 8). As noted, mere synchronization between receivers and transmitters is not what is called for by the claimed invention. Obviousness with respect to the claimed invention as a whole must be shown and the teaching or suggestion to make the claimed combination must be found in the prior art, and not based on reading of applicant's disclosure, MPEP §§ 2141, 2142. The general statement provided by the Office is legally insufficient and points up another difficulty in combining the references: there is simply no need in Mendendorp for the synchronization discussed in Tiedemann. The Office bears the initial burden of showing the desirability for the combination not mere feasibility. This burden has not been met. Thus, for the foregoing additional reasons, respectfully, claim 24 is allowable.

Claim 25 is directed to a method for controlling power consumption in a remote communication device in signal communication with a head end communication device. The method includes starting a counter at the remote communication device to count for a predetermined power down period after the remote unit has received a transmission of a final packet or other indication that transmission from the head end communication device has come to an end, and starting a counter at the head end communication device at substantially the same time as the remote communication device counter is set, wherein a substantial synchronization is maintained between the counters.

The cited art, alone or in combination, fails to teach or suggest the claimed invention of claim 25 for the reasons provided above with respect to claim 24 with respect to the combination of Medendorp and Tiedemann.

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Claims 17 and 19 were rejected under 35 USC § 103(a) as being unpatentable over Medendorp (U.S. Patent No. 5,764,734) in view of Stifle et al. (U.S. Patent No. 4,633,462). Applicant respectfully traverses the rejection.

Claim 17 is directed to a power control circuit for a communication device. The power control circuit includes a counter that establishes a selected time period for powering down a receiver of the communication device, and a processor, coupled to the counter, that is programmed to control the reset of the counter, to power down the receiver, and to power up the receiver to check for incoming data packets transmitted by another communication device when the counter indicates that the selected time period has expired. The counter establishes a time period that is sufficient to allow detection of a data packet that is retransmitted by the other communication device when no acknowledgment signal is received by the other communication device.

The cited references, alone or in combination, fail to teach or suggest the invention of claim 17. Specifically, the Examiner acknowledges that Medendorp fails to teach powering up in time to receive a retransmitted packet. For the reasons discussed above, this limitation is not taught or suggested by the cited references, alone or in combination.

Further, the Examiner acknowledged that Medendorp fails to teach retransmission of packets when no acknowledgement is received. The Examiner cites Stifle for the teaching that when a head end does not receive an acknowledgement, the head end retransmits the packet. Further indicated that it would have been obvious to one of ordinary skill in the art to add the retransmission protocol of Stifle to Medendorp because it would allow data that would have been lost to be retransmitted thereby increasing the reliability of the system. Applicant respectfully traverses this rejection.

The claim limitation at issue with respect to Stifle calls for "the counter establishes a time period that is sufficient to allow detection of a data packet that is retransmitted . . . when no acknowledgement signal is received." This limitation is not directed to the retransmission of an unacknowledged packet per se. Rather, the crux of this limitation calls for the counter to allow sufficient time to receive a retransmission of an unacknowledged packet. There is no teaching or suggestion in either reference, alone or in combination, that is directed to establishing a period of

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a counter to allow for detection of a retransmission of an unacknowledged packet. Therefore, claim 17 is allowable.

Claim 19 depends from claim 17 and thus is also allowable.

Claims 4, 6, 8-12, 14, 15, and 21 were rejected under 35 USC § 103(a) as being unpatentable over Medendorp (U.S. Patent No. 5,764,734) in view of Kim et al. (U.S. Patent No. 6,151,334) and further in view of Tiedemann et al. (U.S. Patent No. 5,392,287). Applicant respectfully traverses this rejection.

Claim 4 depends from claim 1. The arguments for the allowability of claim 1 are incorporated here. Further, claim 4 calls for synchronizing counters. The Examiner asserts that this limitation is met by the addition of Tiedemann with the references cited against claim 1. Applicant asserts that the combination of Tiedemann with Medendorp and Kim does not render claim 1 obvious for the reasons described above with respect to claims 24 and 25.

Claim 6 is directed to a communication device. The communication device includes a transmitter that transmits data, a receiver that receives data over a communications link, a signal processing circuit, coupled to the transmitter and receiver, to prepare data for transmission and to process data received by the receiver, and a control circuit, responsive to the signal processor, that selectively powers at least a portion of the receiver down for a period of time and that powers up the at least a portion of a receiver to check for incoming data when the selected period of time expires, wherein the control circuit includes a counter that is substantially synchronized with a counter at the source of the incoming data in response to an indication from the data source that a data transmission has ended.

Again, the Examiner indicates that Medendorp does not teach a powering down the receiver in response to an indication that the transmission has ended. The Examiner relies on Kim for this teaching. For the reasons identified above, the references, alone or in combination, fail to meet this limitation of the claim. Further, the Examiner indicates that Medendorp does not teach synchronizing a counter with a counter disposed at a source. The Examiner relies on Tiedemann to fill this gap. For the reasons stated above, none of the references, alone or in combination, meet this limitation of the claim.

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Claims 8, 9, 10 and 11 depend from claim 6 and are thus also allowable. Further, with respect to claim 11, the Examiner asserts that it would have been obvious in light of Medendorp to power up the receiver for enough time to detect retransmissions. Applicant respectfully traverses this assertion for the reasons identified above.

Claim 12 is directed to a communication network. The communication network includes a head end communication device, at least one remote communication device that is communicatively coupled to the head end communication device, and wherein each of the at least one remote communication device includes a control circuit that powers down a receiver of the at least one remote communication device for a selected period of time and that powers up the receiver of the at least one remote communication device to check for incoming data from the head end communication device when the selected period of time expires, wherein the control circuit includes a counter that is substantially synchronized with a counter at the source of the incoming data in response to an indication from the head end communication device that a data transmission has ended.

Again, the Examiner indicates that Medendorp does not teach a powering down the receiver in response to an indication that the transmission has ended. The Examiner relies on Kim for this teaching. For the reasons identified above, the references, alone or in combination, fail to meet this limitation of the claim. Further, the Examiner indicates that Medendorp does not teach synchronizing a counter with a counter disposed at a source. The Examiner relies on Tiedemann to fill this gap. For the reasons stated above, none of the references, alone or in combination, meet this limitation of the claim.

Claims 14 and 15 depend from claim 12 and are thus also allowable.

Claim 21 depends from claim 20 and adds the limitation "setting a counter at the head end device to the predetermined power down period upon sending an indication that a transmission to the remote communication device has ended." Again, the Examiner indicates that Medendorp does not teach a powering down the receiver in response to an indication that the transmission has ended. The Examiner relies on Kim for this teaching. For the reasons identified above, the references, alone or in combination, fail to meet this limitation of the claim.

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Claim 23 was rejected under 35 USC § 103(a) as being unpatentable over Medendorp (U.S. Patent No. 5,764,734) in view of Kim et al. (U.S. Patent No. 6,151,334) and further in view of Cutler, Jr. (U.S. Patent No. 5,440,562). Applicant respectfully traverses the rejection.

Claim 23 depends from claim 21 and further specifies "providing a delay to account for timing variations between the counter at the remote unit and the counter at the head end unit. Applicant respectfully asserts that claim 23 is not obvious in view of the cited references, alone or in combination, at least for the reasons identified above with respect to claims 20 and 21.

Claim 13 was rejected under 35 USC § 103(a) as being unpatentable over Medendorp (U.S. Patent No. 5,764,734) in view of Kim et al. (U.S. Patent No. 6,151,334) and Tiedemann et al. (U.S. Patent No. 5,392,287) and further in view of Weston et al. (U.S. Patent No. 5,799,069). Applicant respectfully traverses the rejection.

Claim 13 depends from claim 12 and further specifies that "each of the at least one remote communication device is powered over the connection between the head end communication device and the at least one remote communication device." Applicant respectfully asserts that claim 13 is not obvious in view of the cited references, alone or in combination, at least for the reasons identified with respect to claim 12.

Claim 16 was rejected under 35 USC § 103(a) as being unpatentable over Medendorp (U.S. Patent No. 5,764,734) in view of Kim et al. (U.S. Patent No. 6,151,334) and Tiedemann et al. (U.S. Patent No. 5,392,287) and further in view of Stifle et al. (U.S. Patent No. 4,633,462). Applicant respectfully traverses the rejection.

Claim 16 depends from claim 12 and further specifies that "the head end communication device transmits data with a protocol that allows for retransmission of data that is not acknowledged by the at least one remote communication device." Applicant respectfully asserts that claim 16 is not obvious in view of the cited references, alone or in combination, at least for the reasons identified with respect to claim 12.

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Claim 27 was rejected under 35 USC § 103(a) as being unpatentable over Medendorp (U.S. Patent No. 5,764,734) in view of Emmermann (U.S. Patent No. 5,740,540). Applicant respectfully traverses the rejection.

Claim 27 depends from claim 26 and further specifies that "wherein the retransmission of data comprises a ring signal." Applicant respectfully asserts that claim 27 is not obvious in view of the cited references, alone or in combination, at least for the reasons identified with respect to claim 26.

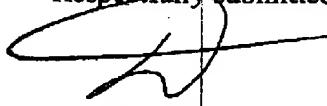
CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. If necessary, please charge any additional fees or credit overpayments to Deposit Account No. 502432.

If the Examiner has any questions or concerns regarding this application, please contact the undersigned at (612) 332-4720.

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Respectfully submitted,



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